

## **Meeting Summary**

### **Day 1: May 3, 2012**

#### **1. Welcome and Introductions**

The meeting was called to order at 9:06 a.m., May 3, 2012, by the Chair of the Delta Independent Science Board (ISB or the Board), Dr. Richard Norgaard. Eight members of the Board were present: Brian Atwater, Elizabeth Canuel, Tracy Collier, Edward Houde, Judy Meyer, Jeffrey Mount, Richard Norgaard, and John Wiens. One member attended by phone: Vince Resh. No members were absent.

Atwater, Mount, and Wiens reported that they are participating in a review of a draft monograph on the Delta's historical ecology. They are not officially part of the group that's working on the review, but they are invited to attend and listen.

Atwater also reported that the organization he works for, the U.S. Geological Survey, has a postdoctoral program that sponsors competitions on a variety of topics every year, including a topic on Delta geology. Atwater contributes to the competition, but is not officially an advisor.

Delta Science Program (DSP) Staff in attendance: Peter Goodwin, Lauren Hastings, Marina Brand, and Joanne Vinton.

#### **2. Delta ISB Chair's Report – Dick Norgaard**

Delta ISB members would like to stagger their terms on the Board so that new members are brought in over a period of years instead of all at once. However, the Delta Stewardship Council (DSC) attorney and legislative liaison determined that the legislation that created the Board will need to be changed to accommodate this idea. The legislative liaison says that the change will not be a problem, but nothing can be done until the next session of the legislature in January, 2013. Board members asked if they could resign, then start a new five-year term. However, vacancies are not filled with new five-year terms—the replacement member finishes the existing term.

The terms of Chair and Vice Chair may be determined by the Board.

#### **3. Delta Stewardship Council Chair Report and Executive Officer Report – Phil Isenberg and Joe Grindstaff**

The Little Hoover Commission recommends that the DSC be merged with the California Natural Resources Agency. Isenberg testified in opposition, stating that the DSC needs to be independent.

The Association of California Water Agencies and the Southern California Water Committee both agree that the \$11.1 billion Water Bond ballot measure needs to be continued (postponed from the November election). There has also been some discussion about rewriting the measure by phasing the proposed projects, for example, by splitting the measure into two bonds, each at some fraction of the original total cost.

Isenberg thinks that the National Research Council (NRC) report "Sustainable Water and Environmental Management in the California Bay-Delta" is useful because it lists both the ideas that stakeholders are interested in and the ideas that stakeholders are opposed to and that are not known by the general public. He listed the following examples:

Delta Independent Science Board Meeting  
May 3-4, 2012

- California does not have enough water to supply all desired uses.
- Water scarcity does not mean that the state is running out of water.
- The historic strategy of building storage and conveyance for water in response to demand is being replaced with a variety of supply and demand management alternatives, including conservation.
- The Delta as it was before 1880 cannot be recovered.
- Consideration of the large number of stressors on the Delta and their effects and interactions leads to the conclusion that elimination of any one stressor is unlikely to reverse declines in listed species.
- Given the diverse set of organisms and processes that constitute the Delta ecosystem, the ultimate success of any approach targeted to particular species seems doubtful.

Isenberg asked the Board to submit comments on the NRC report to the Council.

Grindstaff sent comments to the State Water Resources Control Board on its January 24, 2012, Supplemental Notice of Preparation for Environmental Documentation for the Update and Implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. The letter stresses the importance of the impact that climate change will have, that only using unimpaired flows is not sufficient, and that it is important for everyone involved to have a common understanding of available data and to work together. To read the comment letter, [click here](#).

Grindstaff also sent comments to the Department of Water Resources on the Administrative Draft Environmental Impact Report/Environmental Impact Statement for the Bay Delta Conservation Plan (BDCP). The most significant comment was the recommendation to stage the implementation of large projects, such as new conveyance facilities. (To read the comment letter, [click here](#).) ISB members thought that staging would facilitate implementation of adaptive management because making very large investments in infrastructure improvements does not really allow you to go back.

Board members commented on the governance chapter of the BDCP, which describes creation of programs that duplicate existing programs. For example, the BDCP recommends creating another science program. Consolidation of programs would be better than proliferation of programs.

Isenberg recommended that ISB members read a paper about climate change presented by Robert Shibatani at the California Water, Law, and Policy Conference on April 19-20, 2012. To read the paper, [click here](#). Isenberg asked ISB members for comments on the paper.

#### **4. Lead Scientist Report – Peter Goodwin**

Delta Science Program staff attended two conferences in April: the 30<sup>th</sup> Annual Salmonid Restoration Conference and the joint California Water and Environmental Modeling Forum (CWEMF) / Interagency Ecological Program (IEP) Workshop. Anke Mueller-Solger gave an update on the CWEMF/IEP conferences (see agenda item 4 on Day 2, below).

Goodwin discussed the initial results from the Fall X2 study presented at the IEP conference. He was on the review panel for the study and was impressed with the work done by the agencies involved. Many resources were mobilized in a short time frame. Data were collected to address immediate issues and to use in more fundamental research. He was also interested in the comparison with 2006, which had similar flow volumes to 2011. Yet, the hydrographs and the timing were somewhat different. These types of comparisons will help with understanding

Delta Independent Science Board Meeting  
May 3-4, 2012

Fall X2 (now called Fall Low Salinity Habitat Monitoring or FLaSH). Some Board members felt that the FLaSH study was not well planned and showed lack of coordination by the agencies.

The current major effort for the DSP is to finish their portions of the Delta Plan. Other efforts coming up are: writing the Delta Science Plan, developing performance measures by 2014, several stressor workshops, coordination of landscape scale conceptual models by 2016, early consultation on covered actions, BDCP panels, the FLaSH review, and the Operations Criteria and Plan (OCAP) review in November.

DSP met offsite to discuss the work that DSP needs to do over the next few years and whether or not there are enough staff to do all of it and maintain high quality. DSP is starting work on a Strategic Plan that will fill in details of how to accomplish the objectives of the DSP—support research, synthesize scientific information, facilitate independent peer review, coordinate science, and communicate science. Goodwin said that he would appreciate feedback on the plan from the Board.

One of the first stressor workshops will be on predators in the Delta. The Board asked how workshops will be prioritized. DSP listed the predator workshop as a priority, but the NRC report did not mention predators, so why do that workshop first? Board members cautioned against considering stressors in isolation. They said that it would be better to consider stressors together and how they interact. They recommended developing a program of workshops based on science. The outcome of the workshops should be recommended management actions.

The DSP/UC Davis-supported, free, online journal—San Francisco Estuary and Watershed Science—is read widely, based on the number of articles that are downloaded. The actual number of readers might be much higher, though, because many articles are exchanged by email. The plan is to find out which agencies and organizations are downloading articles. DSP would also like to require Delta Science Fellows publish at least one paper in the journal. Board members suggested that each article include a “broader implications” section. They also suggested making the journal more accessible to more internet search engines.

Announcements for Delta Science Fellows and a Delta ISB member to fill the vacancy have been posted. DSP is hosting two student interns from the Netherlands for three months.

Goodwin suggested that Board members watch parts of the DSC meetings to see how the policy process works and to see how science is evaluated.

### **Public Comment**

Kurt Ohlinger, Sacramento Regional County Sanitation District—Ohlinger encouraged the Board to support a workshop on predators. In addition to top predators that eat Delta fish, Ohlinger would like the workshop to cover Corbula (clams), which consume phytoplankton at the base of the food web. Board members suggested that a food web workshop would be useful.

Burt Wilson, Public Water News Service—Wilson spoke about the subduction zone beneath the Delta and the possible effect of earthquakes on a new conveyance. Norgaard asked Wilson to hold his comments until the public comment period at the end of the day (agenda item 7).

### **5. Bay Delta Conservation Plan (BDCP)**

- Adaptive Management Program—Chris Earle, ICF

The Board asked for a presentation on the proposed adaptive management plan in the BDCP. Chris Earle, who is with ICF International, the primary consulting company that is assisting the Department of Water Resources with writing the draft BDCP, gave the presentation. His presentation covered chapter 3.6 of the BDCP: Adaptive Management, Monitoring, and Research. Key aspects of the discussion included monitoring, data

Delta Independent Science Board Meeting  
May 3-4, 2012

management, integrating BDCP science with existing scientific activities in the Delta, and that coordination does not equal integration. To see the presentation, [click here](#).

- DSP Independent Scientific Review Panel Report on the BDCP Effects Analysis, Phase 2 – Lindsay Correa, Sam Harader

At the request of the BDCP participants, the DSP convened an Independent Science Review Panel (Panel) to assess the scientific soundness of the BDCP Effects Analysis components. This review is being conducted in multiple phases. During Phase 2 of the review, the Panel reviewed BDCP Chapter 5: Effects Analysis and many of the associated technical appendices to assess their scientific soundness. Some of the Panel's initial findings and recommendations were:

- Scoring for the net effects analysis is good.
- The list of stressors used in the analysis is good.
- Uncertainties for restoration are not assessed. There is not a clear analysis of the benefits of habitat restoration.
- More information is needed about the effects of implementation of some conservation measures, along with the sequencing of restoration actions. For example, if herbicides are used to kill invasive plant species, how would that affect future goals?
- The “roll-up” of uncertainty into the net effects analysis needs to be improved, along with the propagation of uncertainty.

For more information about the Review Panel, [click here](#).

- Charge for Delta ISB review of the BDCP Draft Environmental Impact Report (EIR/EIS) – Peter Goodwin

The Delta Independent Science Board is required to review the draft BDCP EIR/EIS. Dr. Peter Goodwin, Delta Science Program Lead Scientist, developed a preliminary draft charge for the Board. To see the charge, [click here](#). Board members proposed that they consider the questions under the sections “Approach, Analysis, Tools and Modeling”, “Adaptive Management”, and “Statutory Questions” (see page 3 of the charge).

The Board discussed several ways to review the EIR/EIS:

- Review the reviews of the EIR/EIS
- Review certain chapters directly
- Contract with a consulting company (ARCADIS) to help with the review. For example, the company could list the critical issues that the Board should consider, review the topics where the Board lacks expertise (such as transportation), and summarize each chapter and list the key points that the Board needs to consider. The company could also write a summary of the alternatives.
- Each Board member would review the chapters in his or her areas of expertise, such as water quality, geology and seismicity, fish and aquatic resources, terrestrial resources, climate change, and integration of ongoing science
- Contract with individual experts
- Start now to review chapters of the administrative draft that are not likely to change

Staff from DSP and DSC will discuss these ideas internally and with Norgaard and Collier.

Larry Roth and Lucas Paz from ARCADIS described the work they have done so far for the DSC. Their work has been focused on whether or not the EIR/EIS could fit into the Delta Plan using four criteria: the alternatives being considered, resilience to

Delta Independent Science Board Meeting  
May 3-4, 2012

earthquakes and floods, climate change, and the overall ability of the document to meet CEQA. They commented that the Board's purview is much bigger than the DSC's. They could create a list of important issues with permission from the DSC.

The Board is concerned about having enough time to review the Draft EIR/EIS, especially because the Delta Stewardship Council needs the Board's review to write their own comments.

The Board is required to send their written comments to the Delta Stewardship Council and the Department of Fish and Game.

**6. National Research Council (NRC) report "Sustainable Water and Environmental Management in the California Bay-Delta"**

The Board decided that they should comment on the NRC report for the benefit of the DSC, and Isenberg also asked the Board to submit comments. Two Board members wrote separate drafts. To read the draft and final comments, [click here](#) and scroll down to "National Research Council report 'Sustainable Water and Environmental Management in the California Bay-Delta'".

**Public Comment**

Greg Zlotnick, consultant for the State and Federal Contractors Water Agency—Zlotnick commented on the purpose of the Board's memo to the DSC, which is to make recommendations to the DSC that reflect the discussion in the NRC report. Zlotnick suggested that the Board's memo should take into account the comment letter from Joe Grindstaff, Executive Officer of the Delta Stewardship Council, to the State Water Resources Control Board on the January 24, 2012, Supplemental Notice of Preparation for Environmental Documentation for the Update and Implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. To read the comment letter, [click here](#). Zlotnick also recommended that the Board's memo highlight recommendations about reservoir operations, and the critical importance of the Delta Science Plan, which DSP will be writing. Zlotnick suggested that Delta science programs need to be rebuilt from the ground up.

**7. Public Comment (For matters that were not on the agenda, but within subject matter jurisdiction of the Delta ISB.)**

Burt Wilson, Public Water News Service—Wilson said that any new conveyance should be able to withstand magnitude 7.5 earthquakes instead of magnitude 6.7. Regarding fish screens proposed as part of five new intakes on the Sacramento River, Wilson recommended that the same type of state-of-the-art fish screens be installed at Clifton Court Forebay. Wilson told the Board members about the history of the State Water Project and the peripheral canal that was proposed in 1982. He said that the Metropolitan Water District is asking for water deliveries from a new conveyance that exceed the amount of water available.

**3:47 p.m. – Adjourn**

## **Day 2: May 4, 2012**

### **1. Welcome**

The meeting was called to order at 9:00 a.m., May 4, 2012, by the Chair of the Delta Independent Science Board (ISB or the Board), Dr. Richard Norgaard. Eight members of the Board were present: Brian Atwater, Elizabeth Canuel, Tracy Collier, Edward Houde, Judy Meyer, Jeffrey Mount, Richard Norgaard, and John Wiens. One member attended by phone: Vince Resh. No members were absent.

Delta Science Program (DSP) Staff in attendance: Peter Goodwin, Lauren Hastings, Marina Brand, and Joanne Vinton.

### **2. State Water Resources Control Board (SWRCB) Bay-Delta Water Quality Control Plan Update – Continued Discussion**

In March, Les Grober appeared before Board members to give them an update on SWRCB efforts in the Delta. SWRCB is working on four processes: 1) the San Joaquin River flow and southern Delta salinity objectives, 2) the comprehensive update of the Bay-Delta Plan, 3) implementation of the Bay-Delta Plan, and 4) Delta tributary flow work. To see the State Water Resources Control Board handout from the March meeting, which includes five questions to the ISB, [click here](#) (the questions are on the bottom of page four).

At this meeting, the Board invited Grober back to discuss the five questions and the Board's draft responses. To see the Board's final responses to Grober's questions, [click here](#).

### **Public Comment**

Greg Zlotnick, consultant for the State and Federal Contractors Water Agency—Zlotnick said that the unaltered hydrograph does not exist anymore, so he wondered how new flow standards could be set. He is concerned that the general public will take excerpts from the SWRCB report and the Delta ISB's responses to Grober's five questions, and use them in the debate about flow standards. For example, the Delta ISB's responses refer to flows as a "master variable," and some people might think that means that flow is the only variable that needs to be considered, even though other parts of the document discuss the importance of other factors. He said that "functional flow" might be better to use than "unimpaired flow." Zlotnick agrees that the climate change issue is very important. He suggested that the Board could influence the SWRCB to consider impacts of climate change now instead of waiting for sometime in the future. Regarding the location of the area where the fresh and salt water meet in the Delta, Zlotnick said that its location is not the biggest issue. The question is: is there habitat at its location? If habitat is provided upstream, the location could move upstream instead of farther west where the habitat now is.

B.J. Miller, San Luis Delta-Mendota Water Authority—Miller said that the idea of unimpaired flows is controversial. Unimpaired flows are computer generated and simulate what flows would be without dams and diversions. It is nothing like the natural flows which flooded the Central Valley. Miller encouraged the Board to read papers and SWRCB reports on natural flows. Unimpaired flows are not natural flows. Miller also commented on the idea of flow being the master variable. He said that he would rather not have that term used, but if it is used, he said that the food web is the master variable. He listed dramatic changes in the Delta, such as species of zooplankton that have disappeared and invasive species that have taken over. Some pelagic fish have declined by 40 percent. Predators have increased by 15 percent. These changes cannot be explained by flow. Multiple changes have occurred over the decades. The alternate paradigm is that changes in the estuary are largely driven by changes in nutrients. In

Delta Independent Science Board Meeting  
May 3-4, 2012

addition, the location where fresh and salt water meet cannot predict the abundance of longfin smelt. Ammonium loading is the problem. Loading is increasing and is the real predictor of longfin smelt abundance.

John Shelton, Department of Fish and Game—Shelton is from the Fresno office and works on San Joaquin River issues. He said that there are two issues to consider:

- Beneficial uses of water. Discussions about beneficial uses are usually about the needs of water users and the amount of water needed to either preclude the loss of an endangered species or to maintain the bare minimum healthy population. Rarely is discussion about demand from the ecosystem. Shelton asked the Board to consider what the ecosystem needs. The San Joaquin system is in critical shape especially for salmon. For the short term, protective flows are needed that go beyond the natural flows.
- Ecological fair share for the tributaries. It is very important that each of the tributaries be a healthy ecosystem. The flows have been flashy, but they need to be more uniform.

Audrey Kelm, San Joaquin Tributaries Authority—Kelm talked about importance of a holistic methodology. There are many stressors on the Delta, even if flow is the master variable. She also said that water quality is being considered in pieces instead of considering how the Sacramento and San Joaquin Rivers flow together into the Delta. She mentioned an inconsistency in the Board's memo regarding use of the terms survival and abundance, which are not synonymous. She said that the decision makers need to decide what they really want.

Ryan Bezerra, Bartkiewicz, Kronick, & Shanahan—Bezerra represents water users along the Yuba and American Rivers. He said that it is very important how the Board uses language. The Yuba and American Rivers are operated according to highly detailed flow standards that were developed over many years to meet certain ecosystem functions. Bezerra said that it is important that statements made about the San Joaquin system are not applied to the Sacramento system.

Dr. Valerie Connor, State and Federal Contractors Water Agency—Connor said that the Board's detailed comments that are at the intersection of best available science and policy are very helpful. Regarding the SWRCB's flow proceedings, more detail is needed on how to proceed with adaptive management. Connor learned recently that the timing of high, pulse flows from the rivers into the Delta are important. Salmon that are migrating downstream respond to pulse flows. If pulse flows come in November, the salmon spend four months in the Delta, so are more likely to be eaten by predators. If pulse flows come in March, the salmon are more likely to survive. Researchers are studying these types of questions intensely, so adaptive management will be important as more is learned. Regarding nutrients and ammonium, eight new papers or presentations on these topics have been published since the NRC report. The Central Valley Regional Water Quality Control Board and the previous Delta lead scientist have weighed in on the significance of ammonium. If the Board writes in their letter that total nitrogen is important, it will be a cause for disagreement, and she encourages the Board to sort through the issues. She emphasized the importance of language and requested that the Board hold a conference call about the NRC memo, so that the public can be involved.

Kurt Ohlinger, Sacramento Regional County Sanitation District—Ohlinger acknowledged that many papers show that ammonium is a stressor, but much research also exists that challenges that idea. Regarding the idea of targeting total nitrogen rather than ammonium, Ohlinger said that there needs to be Delta-specific research to support it.

### **Response to Public Comments**

Norgaard said that the Board will proceed with the NRC memo without another public meeting, but will discuss the SWRCB memo at a teleconference. The NRC memo will report only what was in the NRC report and will not interpret it.

### **3. Discuss Preparation of an ISB Work Plan**

In response to a request from DSC members, the Board discussed their work plans for the next year. Their three biggest projects are review of the BDCP Draft EIR/EIS, the DSP, and the Interagency Ecological Program. Hastings explained what the DSC members need—a big picture of what the Board plans to do along with a schedule. She suggested starting with requirements listed in Water Code Sections 85280 and 85320. Other possible reviews include:

- Final Staff Draft of the Delta Plan
- SWRCB Substitute Environmental Document for the Bay-Delta Water Quality Control Plan (expected in May or June)
- Delta Science Plan

Other Science Plans/Programs that could be reviewed in 2013:

- Ecosystem Restoration Program Conservation Strategy
- Delta Conservancy Strategic Plan
- FloodSAFE Environmental Stewardship and Statewide Resources Office (FESSRO) projects
- Central Valley Flood Protection Plan
- Suisun Marsh Habitat Management, Preservation, and Restoration Plan EIS/EIR

Board members discussed how reviews of plans and other environmental documents is a way to review various science programs. An important part of the reviews is to make sure adaptive management is adequately used. Adaptive management is an issue in many of the science programs, so the Board might write a short, very direct white paper or position paper that explains exactly what science program managers need to do to implement adaptive management. The Board might also write a white paper on climate change. The papers could include examples and guidelines to help managers avoid overlap and conflict between adaptive management programs. Adaptive management workshops could be helpful. The Board would like to learn why adaptive management is difficult for agencies to implement.

Hastings asked the Board to review the adaptive management plan in the Final Staff Draft of the Delta Plan. The Board agreed to review the entire Final Staff Draft of the Delta Plan. The Board will also consider reviewing DSP's Strategic Plan.

Norgaard, Collier, and Hastings agreed to develop a work plan and schedule to present to the DSC.

Board members discussed how to conduct their reviews of science programs. Ideas included:

- Identifying gaps and opportunities for synthesis and integration
- Focusing reviews on whether programs will meet the needs of the Delta Plan and the BDCP
- Developing general questions that ask how the science is being performed, how hypotheses are being addressed, and how productivity is being gauged



Delta Independent Science Board Meeting  
May 3-4, 2012

The Board could develop a list of 15 to 20 questions that could become a framework for program reviews and give some uniformity to the reviews. The questions could be sent to the program manager in advance of the review. Broad guidelines might work better than questions because the various science programs are so different. Investigating reviews of other programs might help the Board develop their questions or guidelines. The Board could ask the program managers what they want from their reviews in an effort to make the review constructive instead of critical.

The Board formed a subcommittee to develop questions: Atwater, Wiens, and Canuel. The Board also asked DSP to develop questions that it would like the Board to consider.

**Public Comment**

Dave Zezulak, Department of Fish and Game (DFG)—Performance measures, evaluation, and adaptive management have been an important and integral part of the former CALFED program. Conceptual models and lifecycle models have also been developed and need to be published. An ecosystem restoration panel developed the Healey Diagram. The Delta Plan developed a similar diagram. DFG staff are currently working on other conceptual models. Zezulak wants a data repository that will make all of this information available to others. He would also like some oversight of adaptive management procedures, and a way to fund adaptive management and monitoring that is separate from grant proposals.

**4. Interagency Ecological Program Update: Annual Workshop—Anke Mueller-Solger**

The Interagency Ecological Program (IEP) held its annual workshop on April 18, 19, and 20, 2012. Oral and poster presentations on April 18 were jointly hosted with the California Water and Environmental Modeling Forum (CWEMF) at the Lake Natoma Inn, Folsom, California.

Anke Mueller-Solger is the IEP Lead Scientist and was on the IEP Workshop Program Committee. She presented an update to the IEP and related science. To see Mueller-Solger's presentation, [click here](#). To see the IEP Workshop abstracts, [click here](#).

**5. Public Comment (For matters that were not on the agenda, but within subject matter jurisdiction of the Delta ISB.)**

None

**6. Preparation for Next Delta ISB Meeting**

The Board planned teleconferences for May 17 and June 8. On May 17, the Delta ISB will finalize and approve a memo to the State Water Resources Control Board and review a draft Work Plan. On June 8, the Delta ISB will discuss their review of the Final Staff Draft of the Delta Plan, the organization of science in the Bay Delta Conservation Plan (BDCP), and their review of the BDCP Draft EIR/EIS. The meeting in July might be a three-hour teleconference instead of a face-to-face meeting.

An invitation to apply to fill a vacancy on the Board was posted on April 24. Applications are due no later than 5 pm on June 4, 2012. To see the announcement, [click here](#). The applications will be sorted and a recommendation made to the DSC. The recommendation will be posted on the DSC website for 30 days, and it will be open for public comment.

**2:19 p.m. – Adjourn**